

**Jetstream-31 (J31) Flight Report for INTEx-ITCT
Flight 17 - 29 July 2004**

Langley plot calibration at sunset.

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Overview

This was the eleventh J31 flight out of Pease, and the second J31 flight on 29 July. The goal was to take advantage of the rare cirrus-free conditions by performing a Langley-plot calibration at sunset.

J31 and its instruments performed well.

Flight Path, Timing, and Measurements

Flight path is shown in Figure 1 below. Takeoff at 2006 UT. Climbed to ~6.4 km, looking for cirrus-free area. We flew racetracks until sunset. AATS time series data are in Figure 2 below. A mean spectrum of Aerosol Optical Depth for the full Langley-plot period is in Figure 3. This spectrum uses the exoatmospheric detector voltages derived from the Langley-plot analysis. The range of airmasses in the Langley was restricted to ~1.5 to 12. AATS was able to track the sun down to airmass >15.

SSFR data are shown in Figure 4 below.

Landing was at ~2400 UT.

Debrief

POS: Similar to previous flights..

Nav/Met: OK.

SSFR: Operated well.

AATS: Performed perfectly. Booted OK the first time. Temperatures OK.

J-31 Flight 17, July 29

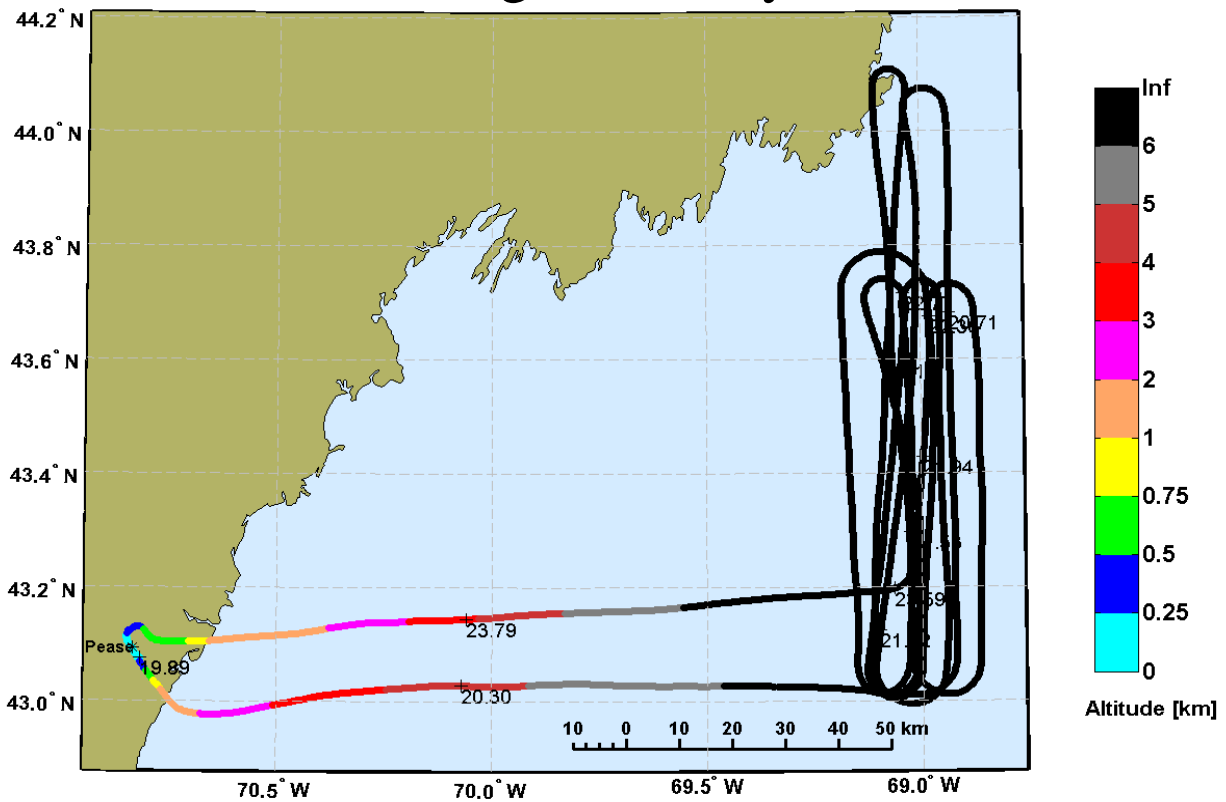


Figure 1. Flight track of J-31, Flight 17, 29 July 2004.

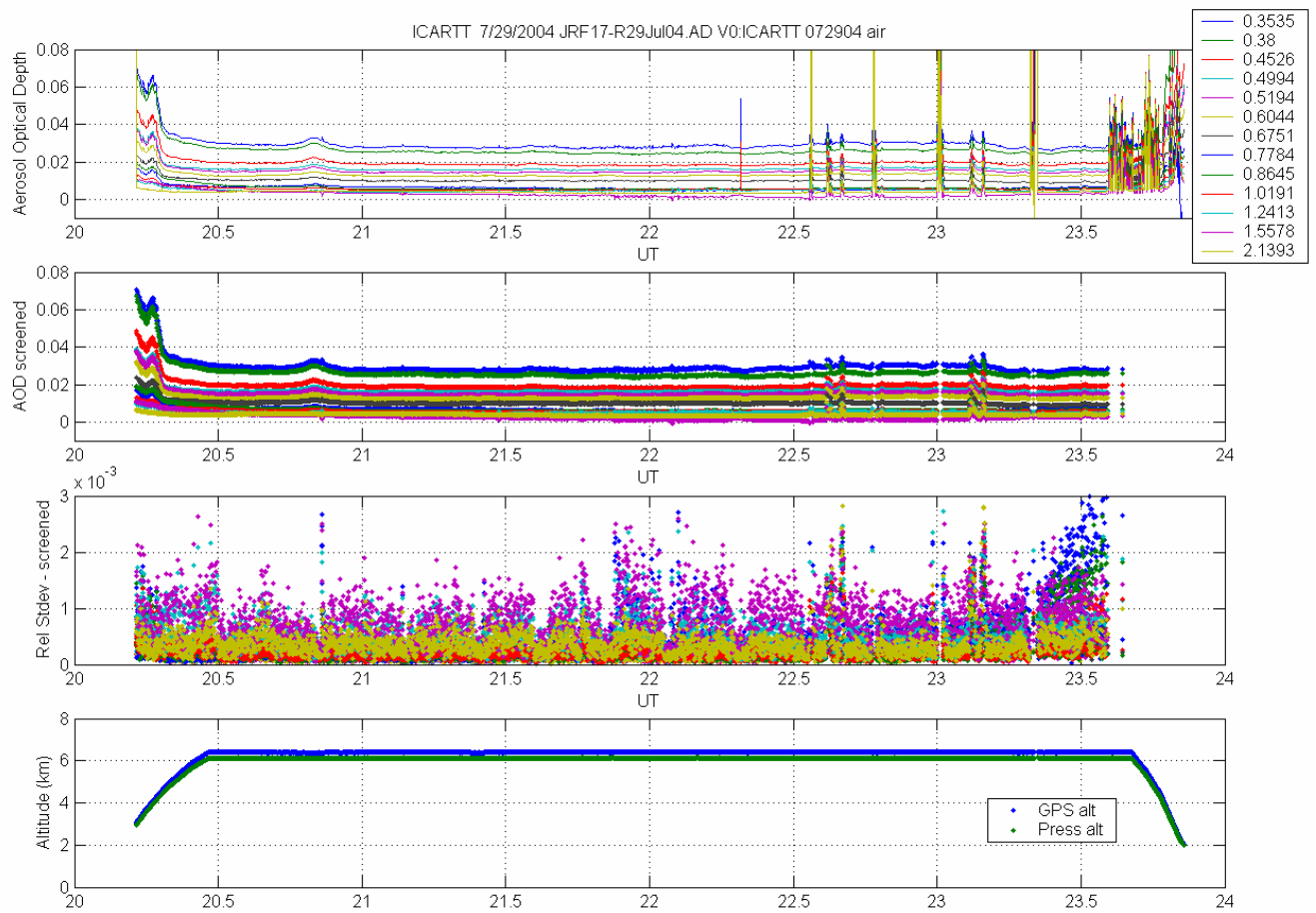


Figure 2. Time series of AATS-14 data for J-31 Flight 17, July 29, 2004.

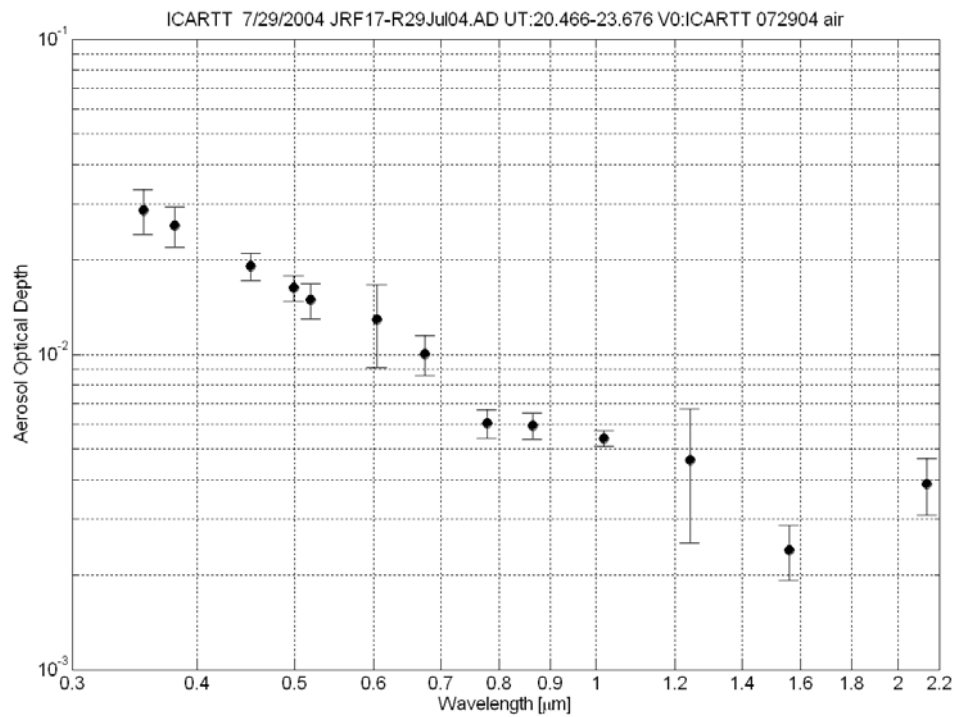


Figure 3. Aerosol Optical Depth spectrum obtained by averaging all AATS-14 data from the 29 July 2004 Flight 17 Langley plot, using V_0 values obtained from that Langley.

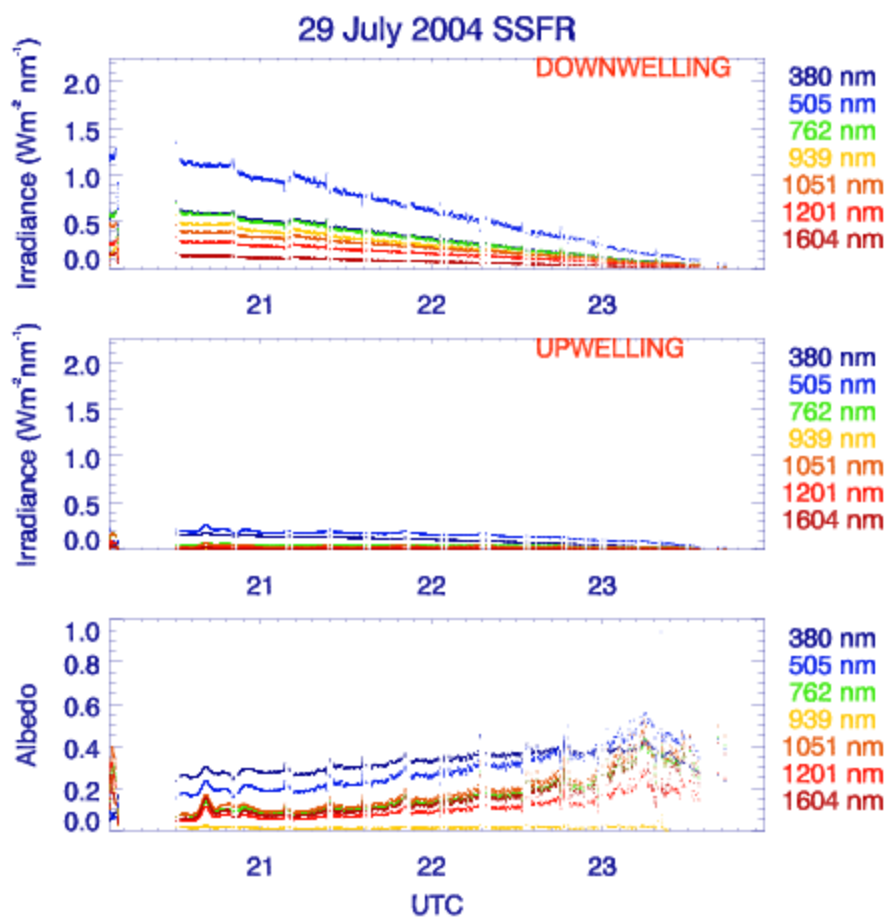


Figure 4. Time series of SSFR-measured downwelling and upwelling irradiance and albedo for J31 Flight 17, July 29, 2004. The downwelling (and albedo) has been filtered to remove data when the aircraft attitude deviated by more than 3% from level.